tively Jerusalem, Purgatory, the Ganges, and Morocco. Dante imagined that, with respect to Jerusalem, the Ganges was the extreme east and Morocco the extreme west. The four important divisions of the day, *mezzodi* or midday, *sera* or evening, *mezzanotte* or midnight, and *mattino* or morning, are represented by lines towards the circumference. At the beginning of the poem Gerusalemme must be placed at the top of the circle, with Mattino over it. Now looking southwards, holding the dial straight before us, it will be found that the sun on the dial follows the same course as the real sun. The lines in the Inferno, Purgatorio, and Paradiso which contain the time allusions are given in Italian and in Longfellow's English translation, and the author finds that the whole duration from the beginning of the poem to the final morning in Purgatorio is seven and a half days, *i.e.* seven days from the entrance with Vergil into Hell.

The conceptions of great poets like Dante and Milton must ever be of interest, though we cannot, of course, expect them to be in agreement with modern astronomy. The latter, though constructing the universe according to Ptolemy, yet, living after Copernicus, and being personally acquainted with Galileo, evidently had misgivings with regard to the truth of that system. None such troubled the mind of Dante; to him the earth was the centre of the universe, both in appearance and in reality. But M. Pradeau presents a scheme concerning his views as bearing upon the progress of time in the "Divina Commedia" which is both ingenious and consistent with itself.

W. T. L.

A School Geometry. Part iii. By H. S. Hall, M.A., and F. H. Stevens, M.A. Pp. vii+137 to 210. (London: Macmillan and Co., Ltd., 1903.) Price 1s.

IN this volume we have a further instalment of the new text-book of elementary geometry which the authors have in preparation, a school geometry based on the recommendations of the Mathematical Association and the recently adopted report of the Cambridge Syndicate.

The present contribution deals with the geometry of the circle, and contains the substance of Euclid, book iii., 1–34, and a portion of book iv. The authors have omitted some of Euclid's propositions, and have not adhered strictly to Euclid's sequence, but the Euclidean form of proof has been retained.

The conception of a "limit" is appropriately introduced in explaining the nature of tangency, and in establishing some of the propositions.

The exercises, which follow the propositions at short intervals, are partly deductive and partly graphical, the latter requiring the use of compasses and scale, the numerical answers being collected at the end of the volume. The examples are simple and well graduated.

We consider that problem 23 would be better omitted, together with the exercises based thereon. It is of no practical value, and should be consigned to the Euclidean relics. Every draughtsman knows that a line can be drawn with greater accuracy to touch two given circles than to pass through two given points, and if the points of contact are wanted, they can be determined subsequently by drawing perpendiculars from the centres of the circles.

The circumference and area of a circle are briefly dealt with on p. 198. The experimental determination and verification of these quantities might with advantage have been more fully gone into. The book concludes with some propositions on circles and triangles, including a demonstration of the property of the nine-points circle.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

American Botanic Laboratory in Jamaica.

THE Director of Kew presents his compliments to the Editor of NATURE and requests the favour of his publishing the enclosed letter.

Kew, August 23.

Sir William Thiselton-Dyer,
Royal Botanic Gardens,
Kew,
Surrey, England.

My dear Sir,

The Government of Jamaica has decided to relinquish its use of the buildings at Cinchona. The experimental and botanical plantations are, however, to be maintained as before. The Surveyor-General of Jamaica offered under public advertisement on June 15 the group of buildings known as Bellevue and some land for rental. I have personally accepted this rental for the purpose of saving the station for scientific purposes, and with the plan of establishing there, if possible, the long desired botanical laboratory in the American tropics. At my request, Dr. MacDougal has recently visited Jamaica to arrange details of the lease, and reports that the buildings and their furnishings are already comfortable and well adapted for the use of investigators.

Dr. MacDougal and I decided to take these steps after consultation and correspondence with Prof. Underwood, who spent the early part of the year in Jamaica in the study of ferns, and who is now in Europe; with Dr. Duncan S. Johnson, who has recently returned from Jamaica, where he has been collecting material for embryological studies; with Mr. Wm. R. Maxon, who was with Prof. Underwood there during the spring; and with Prof. Earle, who spent last November in Jamaica in mycological investigations. Dr. MacDougal was already familiar with the locality from his visit there with Prof. Campbell in 1897, and we had discussed the topic with the Hon. Wm. Fawcett, director of the public gardens and plantations of Jamaica, while he was in New York last autumn during the meeting of the Plant Breeding Conference. The aid and cooperation of all who regard the securing of Cinchona as a proper and desirable act will be needed to maintain such a laboratory, and to this end I ask that you write me your opinions on this subject, and to indicate what aid you can render, and whether either you or your students would wish to make use of the station during the next year, and if so, for what length of time approximately.

I may say that the Jamaican Government is heartily in sympathy with the enterprise, and will cooperate to a very important extent, furnishing facilities for growing plants under the widely different climatic conditions offered by the gardens at Cinchona, Hope, and Castleton, the use of the large botanical laboratory and herbarium at Hope, and the use of visitors' tables in the laboratory at Hope.

As regards Cinchona, I quote the following from Prof. Underwood's account of his work in Jamaica from the July issue of the *Journal* of the New York Botanical Garden:—

"Not the least important of the results of the expedition was a possible solution of the problem of a suitable location for a tropical laboratory, which has long been under consideration by American botanists. At the time of the visit of the committee appointed some years ago to investigate the subject, the plant at Cinchona was occupied by the Government botanist, and was consequently out of the question. A one-story six-room house, three or four low buildings suitable for laboratory work, with two greenhouses of sufficient capacity to conduct experimental work under glass, could be had of the Jamaica Government at a nominal rent. Cinchona is nearly a mile above the sea, with a delightful climate (the extremes of temperature for the past twenty years being 45° F. and 79° F.), a delightful outlook, and as closely accessible to virgin forest as could be obtained. Within three miles, nearly on a level, is

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Morce's Gap, whose tropical conditions I have described above; close to Morce's Gap you make the ascent to John Crow Peak (6000 feet), through a forest of tropical luxuriance. Below is Mabess River (3000 feet), with similar but lower-level vegetation. At about the same distance from Cinchona (three miles) is New Haven Gap (5500 feet), with a similar but higher-altitude flora. Still higher altitudes are accessible at Portland Gap and Blue Mountain Peak at a distance of eight to ten miles.

"There are no human habitations above Cinchona, so that the Clyde River, which supplies it with water, is pure and without sources of contamination; a more healthful location could not be found in all the American tropics."

Briefly expressed, the above scheme offers the investigator residence accommodations and laboratory facilities at Cinchona under the most pleasant and advantageous conditions, from which place he may quickly transfer his work to more pronounced tropical conditions at Hope in a dry climate, or to Castleton in an extremely humid locality. The marine flora is equally accessible.

The locality furnishes easy access to an immense number of species of plants different from those available at any other similar institution; travelling and living expenses are very reasonable, and Jamaica may be reached at intervals of only a few days by numerous steamers from England, Germany (Hamburg), and nearly all ports of eastern America.

Yours sincerely,
N. L. BRITTON.

New York Botanical Garden, Bronx Park,
New York City, August 13.

Training of Forest Officers.

IN a sympathetic notice in the *Indian Forester* of the late distinguished Inspector-General of Forests in India, Mr. H. C. Hill, Sir Dietrich Brandis stigmatises as "absurd" "the idea which, until a short time ago, was current in England, and which to this day is held by many English botanists, that a good botanist must necessarily be a good forester." I quite agree that the idea is absurd; but as I am probably better acquainted with the English botanical world than Sir Dietrich Brandis, I doubt very much whether the idea was ever current in this country, or is held at the moment by many English botanists. For my part I entirely dissociate myself from it, as I know many accomplished botanists who would probably make very indifferent forest officers.

I am more able to agree with Sir Dietrich Brandis when he says, "A forester, more than almost anybody else, must use his eyes and must be able on the spot to draw conclusions from what he has observed." But the power of observation is by no means possessed by everyone. A further requisite, in which I think Sir Dietrich Brandis also agrees, is sympathy with and pleasure in forest nature for its own sake. It appears to me that neither point is kept in view in the present mode of recruiting the Indian Forest Service.

Sir Dietrich Brandis lays great stress on sport, and unless it becomes too absorbing a pursuit, it undoubtedly fulfils the conditions I have stated. It would, however, be as undesirable to insist that every forest officer should be a sportsman as that he should be a botanist.

But I entertain a very strong opinion that a forest officer will never rise to the highest level of efficiency in his work unless he has a scientific grasp of the principles which underlie it. He should be able to identify the trees which compose the forest vegetation under his charge, and for this purpose he should have such an elementary acquaintance with botany as will enable him to use intelligently the book which Sir Dietrich Brandis has been for several years occupied at Kew in preparing for the purpose. He should further have some knowledge of the nature and conditions of vegetable life; he should grasp the idea that a tree is a living organism the growth and development of which are subject to adverse or favourable conditions. He should further have some idea of the enemies and diseases by which trees are liable to be attacked, and of how these attacks can be met. All this a man of ordinary intelligence can acquire if he possesses a real taste for nature without rising to the level of the professional botanist, which it would be absurd to demand of him.

There is the same fallacy underlying the view that mere administrative efficiency is sufficient for a good forest officer as in thinking that mere mechanical drill, without resource or initiative, will make a good soldier.

As I have felt it my duty to urge these views officially, I should be glad to state them more publicly.

I should like to take the opportunity of expressing my regret at the untimely death of Mr. H. C. Hill, the late Inspector-General. Largely as the result of my personal persuasion he accepted a mission in 1900 to initiate a scientific forest administration in the Straits Settlements. His reports were of the highest value, and will be a permanent basis for the future forest policy of that part of the Empire.
W. T. THISELTON-DYER.

Kew, August 28.

Peculiar Clouds.

CAN any of your correspondents explain the following phenomenon? At 5.20 p.m. to-day, the sky to the W. and S. being covered with a dense and unbroken mass of cloud, and the sun, therefore, entirely obscured, I saw a broad patch of iridescent colours like a piece of a rainbow on the clouds to N.N.E., many points more to N. than a rainbow would have been had the sun been shining. No part of the sky was clear, but the clouds were lighter in the N.W.

I saw a similar phenomenon at Colwyn Bay on December 17, 1898, the iridescent cloud being due E. at 2.45 p.m., the sun shining intermittently. I know true "iridescent clouds" well, but they are generally near the sun.
ALFRED O. WALKER.

Ulcombe, Maidstone, August 30.

THE EARTHQUAKE OBSERVATORY IN STRASSBURG.

NOW that the earthquake observatory in Strassburg has been offered as a centre for the proposed international association for seismological research, at which the work of the world so far as it bears upon earthquakes and kindred phenomena may be concentrated, a short description of this institution and its present output may not be devoid of interest.

The building stands in the back part of the University gardens, and lies between two streets, along which heavy traffic is forbidden. Externally it measures 19 x 15m., and essentially consists of four rooms, round the walls of which there is a passage or air space 1m. in width, walls, a second air space, and the outer walls. In short, it is a building with its floor 1·50m. below the surface, within two other buildings.

The object of the construction is to obtain rooms which are light tight, free from currents of air, and in which changes of temperature and moisture should be small. For certain classes of observations these conditions may be imperative, but when recording earthquakes, which is the chief work at Strassburg, gloom and a still atmosphere are distinctly undesirable. In the early days of seismometry the proper place for an earthquake recorder was considered to be a cellar, and when we find instruments with complicated parts which frequently require inspection, and which write their records on smoked paper, together with photographic apparatus designed to be used in broad daylight, relegated to darkness, we realise that traditions still survive.

Although it is well known that different results are obtained from similar instruments installed on different formations, the choice of site at Strassburg was apparently governed by the advantages offered by proximity to its University. In consequence of this, town traffic, which includes that of an electric service,

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